Title (en)

PROPULSIVE THRUST RING SYSTEM

Title (de)

SCHUBRINGANTRIEBSYSTEM

Title (fr)

SYSTEME DE PROPULSION A ANNEAUX DE POUSSEE

Publication

EP 0586511 B1 19971210 (EN)

Application

EP 92912005 A 19920528

Priority

- US 9204647 W 19920528
- US 71162291 A 19910605

Abstract (en)

[origin: WO9222459A1] a low-aspect ratio propeller system is provided with a multiple ring structure (42) formed with a plurality of circular or non-circular, annular, narrow equivalent air foil rings (56.1, 56.2, 56.3, 56.4) which are held by rails (40) in a predetermined relationship with the propeller blades (44). The upstream ring (56.1) is located downstream from the tip vortex of the propeller (44) within the axial span of the propeller. One or more additional downstream-located rings (56.2, 56.3, 56.4) are used so as to provide at least one annular multiple ring-defined pump aperture (60, 62, 64) through which peripheral vortices generated by the propeller blades (44) or fan blades may enhance the mass flow. These vortices increase thrust because their induction action on the rings (56.1, 56.2, 56.3, 56.4) increase beneficial ring flow circulation. Augmented ring flow reduces the velocities in the expanding wake by increasing the mass flow. The destruction of tip and root vortices reduces noise. The multiple ring structure (42) also serves as a guard.

IPC 1-7

B64C 11/00; B63H 5/14

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CPC (source: EP US)

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Cited by

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WO 9222459 A1 19921223; AT E160986 T1 19971215; AU 1999592 A 19930112; AU 662156 B2 19950824; BR 9206089 A 19940802; CA 2109608 A1 19921223; CA 2109608 C 20030902; DE 69223509 D1 19980122; DE 69223509 T2 19980723; EP 0586511 A1 19940316; EP 0586511 A4 19941117; EP 0586511 B1 19971210; ES 2112319 T3 19980401; JP 2003049796 A 20030221; JP 4357797 B2 20091104; JP H06508319 A 19940922; US 5292088 A 19940308; US 5470202 A 19951128; US 5651707 A 19970729

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